

IN THE CLAIMS:

This listing of the claims replaces all prior versions and listings of the claims in this application.

The text of all pending claims (including any withdrawn claims) is set forth below. Canceled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (Original), (Currently amended), (Canceled), (Withdrawn), (Previously presented), (New), and (Not entered).

Please AMEND claims 1, 3, 6, 7, 10, and 13 and CANCEL claim 14 without prejudice or disclaimer in accordance with the following:

1. (Currently amended) A method of manufacturing a polycrystalline silicon thin film using a laser beam to crystallize an amorphous silicon thin film, the method comprising:  
forming an amorphous silicon layer on a thin-film transistor region of a substrate; and irradiating a portion of the amorphous silicon layer through a mask using a laser beam, to form a first polycrystalline silicon region; and  
transversely-moving the mask relative to the substrate by a distance such that the laser beam is overlappingly irradiated at an overlapping region on the substrate where so that a light transmission region of the mask exposes a portion of the amorphous silicon layer and overlaps a part portion of already-crystallized the first polycrystalline silicon region; and are exposed so as to increase an average width of the polycrystalline silicon grains;  
irradiating the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region through the mask using a laser beam to form a second polycrystalline silicon region;  
wherein a width of the overlapping-overlapped portion of the first polycrystalline silicon region during crystallization corresponds to the distance, and is varied from no less measured perpendicularly to a boundary between the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region is always greater than 0.5  $\mu$ m to and always not greater than 2  $\mu$ m; and  
wherein the an average width of the polycrystalline silicon grains of the second polycrystalline silicon region measured perpendicularly to the width of the overlapped portion of

the first polycrystalline silicon region is varied between greater than approximately 0.2  $\mu\text{m}$  and not greater than approximately 0.6  $\mu\text{m}$ , and is decreased when decreases as the width of the overlapping-overlapped portion of the first polycrystalline silicon region decreases, on which the laser-beam is overlappingly-irradiated is decreased.

2. (Canceled)

3. (Currently amended) The method of manufacturing a polycrystalline silicon thin film according to claim 1, wherein the irradiating of the amorphous silicon layer, the moving of the mask, and the irradiating of the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region are part of a sequential lateral solidification (SLS) crystallization method, is used for laser crystallization.

4-5. (Canceled)

6. (Currently amended) A method of manufacturing a polycrystalline silicon thin film by crystallizing amorphous silicon using a laser beam, the method comprising:

forming an amorphous silicon layer on a thin-film transistor region of a substrate;  
irradiating a portion of the amorphous silicon layer through a mask using a laser beam that passes through a mask such that to melt a region of the amorphous silicon layer and cause polycrystalline silicon grains are to grow laterally grown from a boundary between liquid-the melted region of the amorphous silicon layer and solid-an unmelted region of the amorphous silicon layer to form a first polycrystalline silicon region, wherein the mask is provided with comprises at least a light transmission region for passing-transmitting a laser beam and a laser light non-transmission region for blocking the-a laser beam, and the laser transmission region is wider than the laser non-transmission region by more than 1  $\mu\text{m}$ ; and

transversely-moving the mask relative to the substrate by a distance such that the laser beam is overlappingly-irradiated at an overlapping-region on the substrate where so that the light transmission region of the mask exposes a portion of the amorphous silicon layer and overlaps a part-portion of already-crystallized the first polycrystalline silicon region; and are exposed,

irradiating the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region through the mask using a laser beam to form a second polycrystalline silicon region;

wherein a width of the overlapping-overlapped portion of the first polycrystalline silicon region during crystallization corresponds to the translation distance, and is varied between measured perpendicularly to a boundary between the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region is always greater 0.5 μm and always not greater than 2 μm; and

wherein an average width of the polycrystalline silicon grains of the second polycrystalline silicon region measured perpendicularly to the width of the overlapped portion of the first polycrystalline silicon region is varied between greater than approximately 0.2 μm and not greater than approximately 0.6 μm, and is decreased when decreases as the width of the overlapping-overlapped portion of the first polycrystalline silicon region decreases, on which the laser beam is overlappingly irradiated is decreased.

7. (Currently amended) The method of manufacturing a polycrystalline silicon thin film according to claim 6, wherein the mask is formed in a rectangular shape having mask comprising a stripe pattern of light transmission regions and light non-transmission regions.

8.-9. (Canceled)

10. (Currently amended) The method of manufacturing a polycrystalline silicon thin film according to claim 6, wherein the irradiating of the amorphous silicon layer, the moving of the mask, and the irradiating of the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region are part of a sequential lateral solidification (SLS) crystallization method, is used for laser crystallization.

11-12. (Canceled)

13. (Currently amended) A method of manufacturing a polycrystalline silicon thin film, the method comprising:

irradiating a portion of an amorphous silicon layer on a thin-film-thin-film transistor region of a substrate through a mask using a laser beam that passes through a mask, to form crystalline a first polycrystalline silicon region, wherein the mask comprises at least a light transmission region for transmitting a laser beam and a light non-transmission region for blocking a laser beam, and the laser transmission region is wider than the laser non-transmission region by more than 1  $\mu\text{m}$ ;

transversely moving the mask relative to the thin film by a distance; substrate so that the light transmission region of the mask exposes a portion of the amorphous silicon layer and overlaps a portion of the first polycrystalline silicon region; and

overlappingly irradiating an already formed crystalline the exposed portion of the amorphous silicon in an overlapping layer and the overlapped portion of the first polycrystalline silicon region through the mask using a laser beam to form a second polycrystalline silicon region; that corresponds to the distance and that has

wherein a width varied from no less of the overlapped portion of the first polycrystalline silicon region measured perpendicularly to a boundary between the exposed portion of the amorphous silicon layer and the overlapped portion of the first polycrystalline silicon region is always greater than 0.5  $\mu\text{m}$  to and always not greater than 2  $\mu\text{m}$ , and

wherein the mask is provided with a light transmission region to pass the laser beam and a light non-transmission region to block the laser beam, in which a width of the laser transmission region is larger than a width of the laser non-transmission region by at least 1  $\mu\text{m}$ ; and

wherein an average width of the polycrystalline silicon grains of the second polycrystalline silicon region measured perpendicularly to the width of the overlapped portion of the first polycrystalline silicon region is varied between greater than approximately 0.2  $\mu\text{m}$  and not greater than approximately 0.6  $\mu\text{m}$ , and is decreased when decreases as the width of the overlapping-overlapped portion of the first polycrystalline silicon region decreases, on which the laser beam is overlappingly irradiated is decreased.

14-15. (Canceled)